KENTUCKY RETIREMENT SYSTEMS
INVESTMENTS

To: KRS Board of Trustees

From: Richard Robben, Interim Executive Director of Investments

Date: September 13th , 2018

Subject: Report on Recent Investment Committee Activities

Investment Activity

IFM US Infrastructure Debt Fund 1 (Real Return)- The Investment Committee approved an investment of up to $100MM in the Fund at the June 27th, 2018 meeting. The commitment is subject to KRS being no more than 15% of the overall amount raised by the fund.

Lord Abbett (Core Fixed Income) – At the same meeting, the Investment Committee approved an allocation of $750MM to Lord Abbett for a short-duration Core Fixed Income mandate.

Equity Reduction (Public Equities) – In May, staff conducted another equity reduction trade, removing roughly $337MM of exposure (Pension $235MM, Insurance $102MM).

NISA (Core Fixed Income) – During June, staff sent an additional deposit of $527MM ($391MM Pension / $136MM Insurance) to our existing NISA Core Fixed Income portfolio.

Shenkman (US Bank Loans) – In May staff made an additional deposit of $60MM ($35MM Pension / $25MM Insurance) to our existing Bank Loan portfolios.

Tortoise Capital (Real Return MLPs) – In May staff made an additional deposit of $100MM ($75MM Pension / $25MM Insurance) to our existing MLP manager.

Barings / Mass Mutual (European Real Estate) – At the August 27th meeting, the Investment Committee approved a $175MM co-investment opportunity with Mass Mutual in European value-add real estate.

New Asset Allocations Effective July 1st 2018

The Investment Committee approved new asset allocations for each system in June, with an effective date of July 1st, 2018. The Investment team has started to transition to the new allocation policy, and is targeting full implementation for the Growth allocation for October 1st, 2018. However, it is likely that all plans will remain underweight the diversifying strategies allocation and thusly, overweight the Liquidity allocation until staff can find suitable investments in that area. The Investment Committee has asked staff to provide a plan and timeline for filling out our diversifying strategies allocation at the November meeting. Following are the plan level allocations as of August 19th, 2018:

Category	KERS - PEN					KERSH - PEN				
	Market Value	Actual	Target	Diff	Market Diff	Market Value	Actual	Target	Diff	Market Diff
Growth	**$ 1,208,358,200**	**61.6%**	**53.50%**	**8.1%**	**$ 158,199,032**	**$ 418,883,011**	**64.4%**	**62.50%**	**1.9%**	**$ 12,333,443**
US Equity	$ 304,186,242	15.5%	13.75%	1.7%	$ 34,285,521	$ 120,624,186	18.5%	16.75%	1.8%	$ 11,668,902
Non-US Equity	$ 363,478,115	18.5%	17.75%	0.8%	$ 15,060,821	$ 136,668,155	21.0%	20.75%	0.3%	$ 1,693,698
Private Equity	$ 235,331,295	12.0%	7.00%	5.0%	$ 97,927,291	$ 61,300,866	9.4%	10.00%	-0.6%	$ (3,747,065)
High Yield/Specialty Credit	$ 305,362,549	15.6%	15.00%	0.6%	$ 10,925,399	$ 100,289,804	15.4%	15.00%	0.4%	$ 2,717,907
Liquidity	**$ 423,767,830**	**21.6%**	**23.50%**	**-1.9%**	**$ (37,517,038)**	**$ 125,411,784**	**19.3%**	**14.50%**	**4.8%**	**$ 31,092,284**
Core Fixed Income	$ 355,524,399	18.1%	20.50%	-2.4%	$ (46,873,040)	$ 104,561,149	16.1%	13.50%	2.6%	$ 16,746,442
Cash	$ 68,243,431	3.5%	3.00%	0.5%	$ 9,356,001	$ 20,850,635	3.2%	1.00%	2.2%	$ 14,345,842
Diversifying Strategies	**$ 328,979,452**	**16.8%**	**23.00%**	**-6.2%**	**$ (122,490,845)**	**$ 104,666,729**	**16.1%**	**23.00%**	**-6.9%**	**$ (44,943,512)**
Real Return	$ 163,668,928	8.3%	15.00%	-6.7%	$ (130,768,222)	$ 56,077,616	8.6%	15.00%	-6.4%	$ (41,494,280)
Real Estate	$ 68,252,921	3.5%	5.00%	-1.5%	$ (29,892,796)	$ 23,099,352	3.6%	5.00%	-1.4%	$ (9,424,613)
Abs Ret / Opportunistic	$ 97,057,603	4.9%	3.00%	1.9%	$ 38,170,173	$ 25,489,761	3.9%	3.00%	0.9%	$ 5,975,381
Miscellaneous	$ 1,808,851	0.1%	0.00%	0.1%	$ 1,808,851	$ 1,517,785	0.2%	0.00%	0.2%	$ 1,517,785
TOTAL PORTFOLIO	$1,962,914,334					$650,479,309				

Category	CERS - PEN					CERSH - PEN				
	Market Value	Actual	Target	Diff	Market Diff	Market Value	Actual	Target	Diff	Market Diff
Growth	**$4,522,876,824**	**64.1%**	**62.50%**	**1.6%**	**$ 116,130,245**	**$1,511,654,210**	**64.2%**	**62.50%**	**1.7%**	**$ 40,636,561**
US Equity	$1,312,472,633	18.6%	16.75%	1.9%	$ 131,464,550	$ 438,052,986	18.6%	16.75%	1.9%	$ 43,820,256
Non-US Equity	$1,489,326,291	21.1%	20.75%	0.4%	$ 26,286,427	$ 497,784,355	21.1%	20.75%	0.4%	$ 9,406,496
Private Equity	$657,081,281	9.3%	10.00%	-0.7%	$ (47,998,171)	$ 223,826,191	9.5%	10.00%	-0.5%	$ (11,536,633)
High Yield/Specialty Credit	$1,063,996,619	15.1%	15.00%	0.1%	$ 6,377,440	$ 351,990,678	15.0%	15.00%	0.0%	$ (1,053,558)
Liquidity	**$1,344,914,500**	**19.1%**	**14.50%**	**4.6%**	**$ 322,549,293**	**$450,927,346**	**19.2%**	**14.50%**	**4.7%**	**$ 109,651,252**
Core Fixed Income	$1,101,939,485	15.6%	13.50%	2.1%	$ 150,082,224	$ 365,261,292	15.5%	13.50%	2.0%	$ 47,521,480
Cash	$242,975,015	3.4%	1.00%	2.4%	$ 172,467,069	$ 85,666,054	3.6%	1.00%	2.6%	$ 62,129,772
Diversifying Strategies	**$1,181,569,753**	**16.8%**	**23.00%**	**-6.2%**	**$ (440,112,988)**	**$ 389,298,034**	**16.5%**	**23.00%**	**-6.5%**	**$ (152,036,461)**
Real Return	$619,812,962	8.8%	15.00%	-6.2%	$ (437,806,217)	$ 211,463,537	9.0%	15.00%	-6.0%	$ (141,580,699)
Real Estate	$258,681,038	3.7%	5.00%	-1.3%	$ (93,858,689)	$ 81,670,454	3.5%	5.00%	-1.5%	$ (36,010,958)
Abs Ret / Opportunistic	$303,075,753	4.3%	3.00%	1.3%	$ 91,551,917	$ 96,164,043	4.1%	3.00%	1.1%	$ 25,555,196
Miscellaneous	$1,433,450	0.0%	0.00%	0.0%	$ 1,433,450	$ 1,748,648	0.1%	0.00%	0.1%	$ 1,748,648
TOTAL PORTFOLIO	$7,050,794,526					$2,353,628,239				

Category	SPRS - PEN					PENSION TOTAL FUND				
	Market Value	Actual	Target	Diff	Market Diff	Market Value	Actual	Target	Diff	Market Diff
Growth	**$150,649,647**	**58.5%**	**53.50%**	**5.0%**	**$ 12,799,119**	**$ 7,812,421,892**	**63.6%**	**60.9%**	**2.8%**	**$ 340,098,400**
US Equity	$ 41,682,949	16.2%	13.75%	2.4%	$ 6,254,076	$ 2,217,018,996	18.1%	16.2%	1.9%	$ 227,493,304
Non-US Equity	$ 48,012,045	18.6%	17.75%	0.9%	$ 2,276,589	$ 2,535,268,961	20.7%	20.2%	0.4%	$ 54,724,031
Private Equity	$ 20,587,369	8.0%	7.00%	1.0%	$ 2,550,851	$ 1,198,127,002	9.8%	9.5%	0.3%	$ 37,196,273
High Yield/Specialty Credit	$ 40,367,284	15.7%	15.00%	0.7%	$ 1,717,603	$ 1,862,006,933	15.2%	15.0%	0.2%	$ 20,684,791
Liquidity	**$64,346,365**	**25.0%**	**23.50%**	**1.5%**	**$ 3,795,199**	**$ 2,409,367,825**	**19.6%**	**16.1%**	**3.5%**	**$ 429,570,990**
Core Fixed Income	$ 51,539,374	20.0%	20.50%	-0.5%	$ (1,281,856)	$ 1,978,825,698	16.1%	14.8%	1.4%	$ 166,195,250
Cash	$ 12,806,991	5.0%	3.00%	2.0%	$ 5,077,055	$ 430,542,127	3.5%	1.4%	2.1%	$ 263,375,740
Diversifying Strategies	**$ 42,312,410**	**16.4%**	**23.00%**	**-6.6%**	**$ (16,950,433)**	**$ 2,046,826,379**	**16.7%**	**23.0%**	**-6.3%**	**$ (776,534,239)**
Real Return	$ 22,307,570	8.7%	15.00%	-6.3%	$ (16,342,111)	$ 1,073,330,613	8.7%	15.0%	-6.3%	$ (767,991,529)
Real Estate	$ 9,730,936	3.8%	5.00%	-1.2%	$ (3,152,291)	$ 441,434,701	3.6%	5.0%	-1.4%	$ (172,339,347)
Abs Ret / Opportunistic	$ 10,273,905	4.0%	3.00%	1.0%	$ 2,543,969	$ 532,061,065	4.3%	3.0%	1.3%	$ 163,796,637
Miscellaneous	$ 356,115	0.1%	0.00%	0.1%	$ 356,115	$ 6,864,849	0.1%	0.0%	0.1%	$ 6,864,849
TOTAL PORTFOLIO	$257,664,537					$12,275,480,945				

	KRS - INSURANCE FUND ALLOCATIONS									8/20/2018
Category	KERS - INS					KERSH - INS				
	Market Value	Actual	Target	Diff	Market Diff	Market Value	Actual	Target	Diff	Market Diff
Growth	**$ 556,475,881**	**65.4%**	**62.50%**	**2.9%**	**$ 24,820,738**	**$ 326,867,424**	**63.5%**	**62.50%**	**1.0%**	**$ 5,078,459**
US Equity	$ 178,274,561	21.0%	16.75%	4.2%	$ 35,790,983	$ 95,726,608	18.6%	16.75%	1.8%	$ 9,487,165
Non-US Equity	$ 196,219,385	23.1%	20.75%	2.3%	$ 19,709,877	$ 108,827,004	21.1%	20.75%	0.4%	$ 1,993,067
Private Equity	$ 45,753,367	5.4%	10.00%	-4.6%	$ (39,311,456)	$ 49,001,827	9.5%	10.00%	-0.5%	$ (2,484,408)
High Yield/Specialty Credit	$ 136,228,568	16.0%	15.00%	1.0%	$ 8,631,334	$ 73,311,986	14.2%	15.00%	-0.8%	$ (3,917,366)
Liquidity	**$ 158,942,274**	**18.7%**	**14.50%**	**4.2%**	**$ 35,598,281**	**$ 101,954,058**	**19.8%**	**14.50%**	**5.3%**	**$ 27,299,018**
Core Fixed Income	$ 125,203,185	14.7%	13.50%	1.2%	$ 10,365,674	$ 85,345,264	16.6%	13.50%	3.1%	$ 15,838,848
Cash	$ 33,739,089	4.0%	1.00%	3.0%	$ 25,232,607	$ 16,608,794	3.2%	1.00%	2.2%	$ 11,460,171
Diversifying Strategies	**$ 135,277,295**	**15.9%**	**23.00%**	**-7.1%**	**$ (60,371,798)**	**$ 86,069,878**	**16.7%**	**23.00%**	**-6.3%**	**$ (32,348,462)**
Real Return	$ 73,920,313	8.7%	15.00%	-6.3%	$ (53,676,922)	$ 43,571,749	8.5%	15.00%	-6.5%	$ (33,657,603)
Real Estate	$ 26,547,400	3.1%	5.00%	-1.9%	$ (15,985,011)	$ 19,454,875	3.8%	5.00%	-1.2%	$ (6,288,242)
Abs Ret / Opportunistic	$ 34,809,582	4.1%	3.00%	1.1%	$ 9,290,135	$ 23,043,254	4.5%	3.00%	1.5%	$ 7,597,383
Miscellaneous	$ (47,221)	0.0%	0.00%	0.0%	$ (47,221)	$ (29,015)	0.0%	0.00%	0.0%	$ (29,015)
TOTAL PORTFOLIO	$ 850,648,228					$ 514,862,344				

Category	CERS - INS					CERSH - INS				
	Market Value	Actual	Target	Diff	Market Diff	Market Value	Actual	Target	Diff	Market Diff
Growth	**$1,509,084,714**	**64.0%**	**62.50%**	**1.5%**	**$ 35,870,696**	**$820,295,584**	**64.5%**	**62.50%**	**2.0%**	**$ 25,428,158**
US Equity	$ 435,481,576	18.5%	16.75%	1.7%	$ 40,660,219	$ 235,941,802	18.6%	16.75%	1.8%	$ 22,917,332
Non-US Equity	$ 494,924,635	21.0%	20.75%	0.2%	$ 5,817,582	$ 268,221,959	21.1%	20.75%	0.3%	$ 4,325,973
Private Equity	$ 260,783,282	11.1%	10.00%	1.1%	$ 25,069,039	$ 146,758,281	11.5%	10.00%	1.5%	$ 19,579,493
High Yield/Specialty Credit	$ 317,895,220	13.5%	15.00%	-1.5%	$ (35,676,144)	$ 169,373,542	13.3%	15.00%	-1.7%	$ (21,394,640)
Liquidity	**$455,655,750**	**19.3%**	**14.50%**	**4.8%**	**$ 113,870,098**	**$241,307,404**	**19.0%**	**14.50%**	**4.5%**	**$ 56,898,161**
Core Fixed Income	$ 370,886,114	15.7%	13.50%	2.2%	$ 52,671,886	$ 200,939,217	15.8%	13.50%	2.3%	$ 29,247,853
Cash	$ 84,769,636	3.6%	1.00%	2.6%	$ 61,198,211	$ 40,368,187	3.2%	1.00%	2.2%	$ 27,650,308
Diversifying Strategies	**$ 392,534,019**	**16.7%**	**23.00%**	**-6.3%**	**$ (149,608,740)**	**$ 210,256,430**	**16.5%**	**23.00%**	**-6.5%**	**$ (82,254,783)**
Real Return	$ 209,329,474	8.9%	15.00%	-6.1%	$ (144,241,890)	$ 108,778,638	8.6%	15.00%	-6.4%	$ (81,989,545)
Real Estate	$ 84,459,107	3.6%	5.00%	-1.4%	$ (33,398,015)	$ 46,226,559	3.6%	5.00%	-1.4%	$ (17,362,835)
Abs Ret / Opportunistic	$ 98,745,438	4.2%	3.00%	1.2%	$ 28,031,165	$ 55,251,233	4.3%	3.00%	1.3%	$ 17,097,597
Miscellaneous	$ (132,054)	0.0%	0.00%	0.0%	$ (132,054)	$ (71,536)	0.0%	0.00%	0.0%	$ (71,536)
TOTAL PORTFOLIO	**$ 2,357,142,428**					**$ 1,271,787,882**				

Category	SPRS - INS					INSURANCE TOTAL FUND				
	Market Value	Actual	Target	Diff	Market Diff	Market Value	Actual	Target	Diff	Market Diff
Growth	**$125,086,157**	**65.6%**	**62.50%**	**3.1%**	**$ 5,958,812**	**$ 3,337,809,759**	**64.4%**	**62.5%**	**1.9%**	**$ 97,156,862**
US Equity	$ 36,014,882	18.9%	16.75%	2.1%	$ 4,088,753	$ 981,439,429	18.9%	16.8%	2.2%	$ 112,944,453
Non-US Equity	$ 40,479,376	21.2%	20.75%	0.5%	$ 929,098	$ 1,108,672,358	21.4%	20.8%	0.6%	$ 32,775,597
Private Equity	$ 22,335,351	11.7%	10.00%	1.7%	$ 3,274,975	$ 524,632,107	10.1%	10.0%	0.1%	$ 6,127,643
High Yield/Specialty Credit	$ 26,256,549	13.8%	15.00%	-1.2%	$ (2,334,014)	$ 723,065,865	13.9%	15.0%	-1.1%	$ (54,690,831)
Liquidity	**$34,422,162**	**18.1%**	**14.50%**	**3.6%**	**$ 6,784,618**	**$ 992,281,647**	**19.1%**	**14.5%**	**4.6%**	**$ 240,450,175**
Core Fixed Income	$ 30,188,367	15.8%	13.50%	2.3%	$ 4,456,861	$ 812,562,147	15.7%	13.5%	2.2%	$ 112,581,122
Cash	$ 4,233,795	2.2%	1.00%	1.2%	$ 2,327,757	$ 179,719,500	3.5%	1.0%	2.5%	$ 127,869,054
Diversifying Strategies	**$ 31,106,134**	**16.3%**	**23.00%**	**-6.7%**	**$ (12,732,729)**	**$ 855,243,755**	**16.5%**	**23.0%**	**-6.5%**	**$ (337,316,511)**
Real Return	$ 15,048,985	7.9%	15.00%	-7.1%	$ (13,541,578)	$ 450,649,159	8.7%	15.0%	-6.3%	$ (327,107,536)
Real Estate	$ 7,421,782	3.9%	5.00%	-1.1%	$ (2,108,406)	$ 184,109,723	3.6%	5.0%	-1.4%	$ (75,142,509)
Abs Ret / Opportunistic	$ 8,635,367	4.5%	3.00%	1.5%	$ 2,917,255	$ 220,484,874	4.3%	3.0%	1.3%	$ 64,933,535
Miscellaneous	$ (10,700)	0.0%	0.00%	0.0%	$ (10,700)	$ (290,527)	0.0%	0.0%	0.0%	$ (290,527)
TOTAL PORTFOLIO	**$ 190,603,752**					**$ 5,185,044,635**				

Continued Restructuring of Absolute Return Investments

Staff has continued to restructure the Absolute Return portfolio, submitting redemption notices to the Credit Suisse SPF Fund in May and the Prudential GRV Fund in August. At the end of June, we received the bulk of our investments back from Anchorage, Coatue, and Davidson Kempner. These funds had been served redemption notices earlier in the year. At this point, the remaining managers will serve as the basis for the rebuilding of the allocation, and staff will work with Wilshire to review potential new managers.

Actuarial Sub-Committee Activity

The Actuarial sub-committee met on August 28th to review the Administrative Actuarial Factors and Interest Rate used by each plan. Actuarial factors are used in the administration of KRS benefits to determine the amount of retirement benefits to be paid under various optional forms of payment, including Tier 3 annuity amounts and also used when calculating the cost of service purchases. The interest rate charge is used to calculate the cost to purchase Recontribution of Refund and Omitted with Interest service purchase types and charged to Installment of Service Purchase Agreement (IPS) contracts, as well as, delinquent employer invoices. The sub-committee voted to recommend that the actuarial factors be based on a discount rate of 5.25% for ALL plans, the interest rate charge remain at 7.50%, and the implementation date of the actuarial factors be July 1, 2019 after the completion of KRS' Actuarial Experience Study. The full Investment Committee then voted to accept that recommended.

Investment Guideline Waivers

The Investment Committee granted 3 guideline waivers at the February 6th meeting and agreed to review each of these waivers at all subsequent meetings. Two of these waivers are still in effect:

1. Staff was granted a waiver of the requirement that each of our external investment managers should be visited annually on-site by KRS staff.
2. Staff was granted a waiver of the requirement to rebalance assets within the Absolute Return, Real Estate, and Fixed Income asset classes as the transition to our new asset allocation policy is ongoing.

Performance – Fiscal Year 2018

PENSION (Net of Fees)					
	Jun-18	FYTD	1Yr	3Yr	5Yr
Total Pension Fund	-0.05%	8.57%	8.57%	7.01%	7.63%
Allocation Index	0.00%	7.91%	7.91%	6.86%	7.57%
Value Add	-0.05%	0.66%	0.66%	0.15%	0.06%
IPS Benchmark	0.14%	7.00%	7.00%		
Value Add	-0.19%	1.57%	1.57%		
KERS	-0.16%	7.50%	7.50%	6.50%	7.19%
Allocation Index	0.05%	7.15%	7.15%	6.50%	7.24%
Value Add	-0.21%	0.35%	0.35%	0.00%	-0.05%
IPS Benchmark	0.11%	6.84%	6.84%		
Value Add	-0.27%	0.66%	0.66%		
Assumed Rate of Return	0.43%	5.25%	5.25%		
Value Add	-0.59%	2.25%	2.25%		
KERS-HAZ	-0.05%	8.68%	8.68%	7.14%	7.70%
Allocation Index	0.00%	8.22%	8.22%	6.91%	7.52%
Value Add	-0.05%	0.46%	0.46%	0.23%	0.18%
IPS Benchmark	0.15%	7.04%	7.04%		
Value Add	-0.20%	1.64%	1.64%		
Assumed Rate of Return	0.51%	6.25%	6.25%		
Value Add	-0.56%	2.43%	2.43%		
CERS	-0.04%	8.75%	8.75%	7.18%	7.71%
Allocation Index	0.00%	8.22%	8.22%	6.91%	7.52%
Value Add	-0.04%	0.53%	0.53%	0.27%	0.19%
IPS Benchmark	0.15%	7.04%	7.04%		
Value Add	-0.19%	1.71%	1.71%		
Assumed Rate of Return	0.51%	6.25%	6.25%		
Value Add	-0.55%	2.50%	2.50%		
CERS-HAZ	-0.01%	8.77%	8.77%	7.21%	7.73%
Allocation Index	0.00%	8.22%	8.22%	6.90%	7.52%
Value Add	-0.01%	0.55%	0.55%	0.31%	0.21%
IPS Benchmark	0.15%	7.04%	7.04%		
Value Add	-0.16%	1.73%	1.73%		
Assumed Rate of Return	0.51%	6.25%	6.25%		
Value Add	-0.52%	2.52%	2.52%		
SPRS	-0.14%	7.65%	7.65%	6.06%	7.04%
Allocation Index	0.19%	7.68%	7.68%	6.54%	7.28%
Value Add	-0.33%	-0.03%	-0.03%	-0.48%	-0.24%
IPS Benchmark	0.11%	6.84%	6.84%		
Value Add	-0.25%	0.81%	0.81%		
Assumed Rate of Return	0.43%	5.25%	5.25%		
Value Add	-0.57%	2.40%	2.40%		

INSURANCE (Net of Fees)					
	Jun-18	FYTD	1Yr	3Yr	5Yr
Total Insurance Fund	0.13%	9.05%	9.05%	7.40%	7.71%
Allocation Index	0.17%	8.48%	8.48%	7.22%	7.90%
Value Add	-0.04%	0.57%	0.57%	0.18%	-0.19%
IPS Benchmark	0.15%	7.04%	7.04%		
Value Add	-0.02%	2.01%	2.01%		
KERS-INS	-0.22%	7.96%	7.96%	6.92%	7.23%
Allocation Index	0.00%	8.43%	8.43%	7.09%	7.66%
Value Add	-0.22%	-0.47%	-0.47%	-0.17%	-0.43%
IPS Benchmark	0.15%	7.04%			
Value Add	-0.37%	0.92%			
Assumed Rate of Return	0.51%	6.25%			
Value Add	-0.73%	1.71%			
KERSH-INS	0.10%	8.88%	8.88%	7.31%	7.69%
Allocation Index	0.21%	8.60%	8.60%	7.16%	7.73%
Value Add	-0.11%	0.28%	0.28%	0.15%	-0.04%
IPS Benchmark	0.15%	7.04%			
Value Add	-0.05%	1.84%			
Assumed Rate of Return	0.51%	6.25%			
Value Add	-0.41%	2.63%			
CERS-INS	0.20%	9.21%	9.21%	7.46%	7.79%
Allocation Index	0.21%	8.60%	8.60%	7.18%	7.76%
Value Add	-0.01%	0.61%	0.61%	0.28%	0.03%
IPS Benchmark	0.15%	7.04%			
Value Add	0.05%	2.17%			
Assumed Rate of Return	0.51%	6.25%			
Value Add	-0.31%	2.96%			
CERSH-INS	0.23%	9.32%	9.32%	7.55%	7.84%
Allocation Index	0.21%	8.60%	8.60%	7.18%	7.76%
Value Add	0.02%	0.72%	0.72%	0.37%	0.08%
IPS Benchmark	0.15%	7.04%			
Value Add	0.08%	2.28%			
Assumed Rate of Return	0.51%	6.25%			
Value Add	-0.28%	3.07%			
SPRS-INS	0.20%	9.34%	9.34%	7.53%	7.83%
Allocation Index	0.21%	8.60%	8.60%	7.19%	7.77%
Value Add	-0.01%	0.74%	0.74%	0.34%	0.06%
IPS Benchmark	0.15%	7.04%			
Value Add	0.05%	2.30%			
Assumed Rate of Return	0.51%	6.25%			
Value Add	-0.31%	3.09%			

July-2018

	Net of Fee Returns									Market Value
	Month	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	Inception Return	Inception Date	$
KRS Pension Plan	1.38	1.38	2.59	1.38	8.11	7.52	7.46	9.16	3/31/84	12,420,859,005
KRS Allocation Index	1.42	1.42	1.95	1.42	7.51	7.52	7.60	9.29	3/31/84	
Value Added	-0.04	-0.04	0.63	-0.04	0.60	-0.01	-0.14	-0.13	3/31/84	
KRS IPS Benchmark	1.45	1.45	2.37	1.45	6.99				3/31/84	
KERS Pension Plan	1.28	1.28	2.25	1.28	7.14	6.56	7.02	9.09	3/31/84	2,009,995,450
KERS Allocation Index	1.34	1.34	1.52	1.34	6.67	6.49	6.91	9.19	3/31/84	
Value Added	-0.06	-0.06	0.73	-0.06	0.47	0.06	0.11	-0.10	3/31/84	
KERS IPS Benchmark	1.33	1.33	1.79	1.33	6.70				3/31/84	
Assumed Rate 5.25%	0.43	0.43	3.03	0.43	5.25				3/31/84	
KERS (H) Pension Plan	1.40	1.40	2.58	1.40	8.19	7.66	7.52	9.17	3/31/84	655,587,441
KERS (H) Allocation Index	1.44	1.44	2.04	1.44	8.18	7.69	7.62	9.30	3/31/84	
Value Added	-0.04	-0.04	0.54	-0.04	0.01	-0.03	-0.10	-0.13	3/31/84	
KERS (H) IPS Benchmark	1.48	1.48	2.45	1.48	7.49				3/31/84	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/84	
CERS Pension Plan	1.40	1.40	2.63	1.40	8.28	7.71	7.54	9.17	3/31/84	7,122,641,346
CERS Allocation Index	1.44	1.44	2.08	1.44	8.24	7.71	7.63	9.30	3/31/84	
Value Added	-0.04	-0.04	0.55	-0.04	0.04	0.00	-0.09	-0.13	3/31/84	
CERS IPS Benchmark	1.48	1.48	2.49	1.48	7.55				3/31/84	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/84	

	Net of Fee Returns									Market Value
	Month	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	Inception Return	Inception Date	$
CERS (H) Pension Plan	1.40	1.40	2.67	1.40	8.30	7.74	7.55	9.18	3/31/84	2,372,768,236
CERS (H) Allocation Index	1.44	1.44	2.13	1.44	8.30	7.73	7.64	9.30	3/31/84	
Value Added	-0.04	-0.04	0.54	-0.04	-0.00	0.01	-0.09	-0.13	3/31/84	
CERS (H) IPS Benchmark	1.48	1.48	2.54	1.48	7.61				3/31/84	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/84	
SPRS Pension Plan	1.31	1.31	2.21	1.31	7.22	6.57	6.83	9.07	3/31/84	259,866,536
SPRS Allocation Index	1.35	1.35	1.83	1.35	7.37	7.18	7.30	9.25	3/31/84	
Value Added	-0.04	-0.04	0.37	-0.04	-0.15	-0.61	-0.47	-0.18	3/31/84	
SPRS IPS Benchmark	1.33	1.33	1.97	1.33	6.90				3/31/84	
Assumed Rate 5.25%	0.43	0.43	3.03	0.43	5.25				3/31/84	

Insurance Plan Performance

	Net of Fee Returns									Market Value
	Month	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	Inception Return	Inception Date	$
KRS Insurance Plan	1.40	1.40	2.85	1.40	8.62	7.90	7.53	7.49	3/31/87	5,202,563,739
KRS Allocation Index	1.43	1.43	2.25	1.43	8.07	8.00	8.03	7.90	3/31/87	
Value Added	-0.03	-0.03	0.60	-0.03	0.56	-0.11	-0.51	-0.40	3/31/87	
KRS IPS Benchmark	1.44	1.44	2.69	1.44	7.41				3/31/87	
KERS Insurance Plan	1.50	1.50	2.27	1.50	7.60	7.43	7.09	7.42	3/31/87	846,771,772
KERS Allocation Index	1.50	1.50	1.94	1.50	7.68	7.79	7.82	7.87	3/31/87	
Value Added	-0.00	-0.00	0.32	-0.00	-0.08	-0.36	-0.73	-0.45	3/31/87	
KERS IPS Benchmark	1.43	1.43	2.36	1.43	7.01				3/31/87	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/87	
KERS (H) Insurance Plan	1.38	1.38	2.72	1.38	8.42	7.79	7.49	7.49	3/31/87	518,134,584
KERS (H) Allocation Index	1.40	1.40	2.21	1.40	8.02	7.90	7.89	7.88	3/31/87	
Value Added	-0.02	-0.02	0.51	-0.02	0.40	-0.11	-0.40	-0.39	3/31/87	
KERS (H) IPS Benchmark	1.44	1.44	2.65	1.44	7.35				3/31/87	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/87	
CERS Insurance Plan	1.38	1.38	2.93	1.38	8.78	7.95	7.59	7.51	3/31/87	2,367,107,543
CERS Allocation Index	1.41	1.41	2.28	1.41	8.11	7.93	7.91	7.88	3/31/87	
Value Added	-0.03	-0.03	0.65	-0.03	0.67	0.02	-0.32	-0.38	3/31/87	
CERS IPS Benchmark	1.44	1.44	2.71	1.44	7.44				3/31/87	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/87	

	Net of Fee Returns									Market Value
	Month	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	Inception Return	Inception Date	$
CERS (H) Insurance Plan	1.37	1.37	2.99	1.37	8.87	8.04	7.64	7.51	3/31/87	1,279,247,546
CERS (H) Allocation Index	1.41	1.41	2.29	1.41	8.12	7.93	7.91	7.88	3/31/87	
Value Added	-0.04	-0.04	0.69	-0.04	0.75	0.10	-0.27	-0.37	3/31/87	
CERS (H) IPS Benchmark	1.44	1.44	2.72	1.44	7.45				3/31/87	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/87	
SPRS Insurance Plan	1.38	1.38	3.00	1.38	8.90	8.02	7.63	7.51	3/31/87	191,302,291
SPRS Allocation Index	1.41	1.41	2.25	1.41	8.07	7.92	7.90	7.88	3/31/87	
Value Added	-0.03	-0.03	0.75	-0.03	0.83	0.10	-0.27	-0.37	3/31/87	
SPRS IPS Benchmark	1.44	1.44	2.68	1.44	7.40				3/31/87	
Assumed Rate 6.25%	0.51	0.51	3.60	0.51	6.25				3/31/87	